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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,307	05/16/2006	Mark Thomas Johnson	NL 031349	1709
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EXAMINER KITEMA, BENYAM				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/579,307

Applicant(s)

JOHNSON ET AL.

Examiner

BENYAM KETEMA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/16/2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☐ Claim(s) 1-22 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 16 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/CDC)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

DETAILED ACTION

1. Claims 1-22 are presented for examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. EPO 03104297.1, filed on 11/21/2003.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-22 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. PG Pub No. 2003/0137521A1 (Zehner et al.).

As in **Claims 1, 20, 21 and 22**, Zehner et. al. discloses *a device, method, apparatus and drive waveform of*

- *An electrophoretic display device (Paragraph 2, line 3-6) comprising ;*
- *an electrophoretic material comprising charged particles (8, 9) in a fluid (10) (Paragraph 2, line 6-14),*
- *a plurality of picture elements (Paragraph 89, line 8-24), discloses pixels arranged in row and columns hence showing plurality of pixels (i.e. picture elements).*
- *first and second electrodes (5, 6) associated with each picture element, the charged particles (8, 9) being able to occupy a position being one of a plurality of positions between said electrodes (5, 6) (Paragraph 2, line 6-14),*
- *said positions corresponding to respective optical states (Paragraph 160, line 7-9)*
- *of said display device (1), and drive means arranged to supply a drive waveform to said electrodes (5, 6,) said drive waveform (Paragraph 90, line 1-11) comprising:*
 - *a) a sequence of drive signals, each effecting an image transition by causing said particles (8, 9) to occupy a predetermined optical state corresponding to image information to be displayed (Paragraph 163., line 1-10),*
 - *and b) at least one voltage pulse in respect of each drive signal for inducing a substantially uniform electric field distribution across said display device (1). (Fig 8 and 9) discloses a reset pulse 304 (voltage pulse) is being applied before*

writing pulse 306 (drive pulse) and it is known in the art that a reset pulse (voltage pulse) is used to provide uniform electric field across the display device.

As in **Claim 2**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein said at least one voltage pulse for inducing a substantially uniform electric field distribution across said display device (1) is provided in said drive waveform prior to each drive signal.* (Fig 8 and 9) discloses a reset pulse 304 (voltage pulse) is being applied before writing pulse 306 (drive pulse) and it is known in the art that a reset pulse (voltage pulse) is used to provide uniform electric field across the display device.

As in **Claim 3**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 2, wherein said at least one voltage pulse for inducing a substantially uniform electric field distribution across said display device (1) is provided in said drive waveform immediately prior to each drive signal.* (Fig 8 and 9) discloses a reset pulse 304 (voltage pulse) is being applied immediately before writing pulse 306 (drive pulse) and it is known in the art that a reset pulse (voltage pulse) is used to provide uniform electric field across the display device.

As in **Claim 4**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein said at least one voltage pulse comprises a single voltage pulse of a fixed polarity in respect of each drive signal.* Since single polarity voltage pulse is

defined as reset pulse (i.e. shaking pulse) Fig 8 and 9 discloses a reset pulse 304 (voltage pulse) is applied before and in respect of writing pulse 306 (drive pulse).

As in **Claim 5**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein multiple voltage pulses of a fixed polarity are provided in respect of each drive signal for inducing a substantially uniform electric field distribution across said display (1).* (Paragraph 150, line 1-16 and Fig 9 and 10) discloses multiple alternating voltage pulses (reset pulses "304") are provided in respect of drive signal (writing signal "306"). At the conclusion of the reset step 304, all the pixels of the display are in the same optical state.

As in **Claim 6**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein said at least one voltage pulse is applied to all of said picture elements, or at least a significant proportion thereof, simultaneously.* (Paragraph 168, line 3-5 and Fig 8) discloses a reset pulse (voltage pulse) is applied to all pixels of the display.

As in **Claim 7**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, multiple voltage pulses of alternating polarity are provided in respect of each drive signal for inducing a substantially uniform electric field distribution across said display (1).* (Paragraph 150, line 1-16 and Fig 9 and 10) discloses multiple alternating voltage pulses (reset pulses "304") are provided in respect of drive signal (writing signal "306"). At the conclusion of the reset step 304, all the pixels of the display are in the

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same optical state.

As in **Claim 8**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 7, wherein said multiple voltage pulses are of substantially regularly alternating polarity*. (Paragraph 150, line 1-16 and Fig 9 and 10) discloses multiple alternating voltage pulses (reset pulses "304") being applied.

As in **Claim 9**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 7, wherein said multiple voltage pulses are of irregularly alternating polarity*. (Paragraph 150, line 1-16 and Fig 9 and 10) discloses multiple alternating voltage pulses (reset pulses "304") being applied.

As in **Claim 10**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein said drive waveform is pulse width modulated*. (Paragraph 71, line 16-20 and Paragraph 167 line 5-6)

As to **Claim 11**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein said drive waveform is voltage modulated*. (Paragraph 71, line 3-8)

As in **Claim 12**, Zehner et al. discloses all recited limitation of independent claim 1, as described above from which claim 12 depends.

A display device (1) according to claim 1, wherein at least one individual drive waveform is substantially dc-balanced. (Paragraph 196, line 13-17)

As in **Claim 13**, Zehner et al. discloses *a display device (Fig 1 item 26) according to claim 1, wherein at least some of the sub-sets of closed loops wherein an image transition cycle causes a pixel to have substantially the same optical state at the end of said cycle as at the beginning, are substantially dc-balanced.* (Paragraph 196, line 1-13) discloses when sequence of transitions begins and end in one optical state pixel should be DC balanced.

As in **Claim 14**, Zehner et al. discloses *a display device (Fig 1 item 26) according to claim 1, comprising two substrates (2), at least one of which is substantially transparent, whereby the charged particles (8, 9) are present between the two substrates (2).* (Paragraph 11, line 1-5 and Paragraph 12, line 1-11)

As in **Claim 15**, Zehner et al. discloses *a display device (Fig 1 item 26) according to claim 1, wherein the charged particles (8, 9) and the fluid (10) are encapsulated.* (Paragraph 11, line 1-5 and Paragraph 12, line 1-11) discloses plurality of charged particles encapsulated in fluid.

As in **Claim 16**, Zehner et al. discloses *a display device (Fig 1 item 26) according to claim 15, wherein the charged particles (8, 9) and the fluid (10) are encapsulated in a*

plurality of individual microcapsules (7), each defining a respective picture element.
(Paragraph 11, line 1-5 and Paragraph 12, line 1-11) discloses plurality of charged particles encapsulated in fluid and comprising numerous smaller capsules (*microcapsules*).

As in **Claim 17**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, having at least three optical states.* (Paragraph 167, line 1-5) discloses different optical states (i.e. black, dark gray, light gray and white).

As in **Claim 18**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 1, wherein image transitions are effected in respect of one or more picture elements which do not substantially require an optical state change.* (Paragraph 160, line 1-14) discloses current optical state and subsequent optical state are same, because the “erasing pulse” and the “blanking pulses” are applied without regard to the current and next optical states.

As in **Claim 19**, Zehner et al. discloses *a display device* (Fig 1 item 26) *according to claim 18, wherein image transitions are effected in respect of all picture elements which do not substantially require an optical state change.* (Paragraph 160, line 1-14) discloses current optical state and subsequent optical state are same, because the “erasing pulse” and the “blanking pulses” are applied without regard to the current and next optical states.

Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No US PG Pub No. 2002/0005832 discloses electrophoretic display, resetting period and writing period, an image data is supplied to a data line drive circuit and a gradation voltage is applied to each pixel electrode. Webber (US PG Pub No. 2002/0180687) discloses electrophoretic display comprises a plurality of particles suspended in a suspending fluid.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENYAM KETEMA whose telephone number is (571)270-7224. The examiner can normally be reached on Monday- Friday 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shalwala Bipin H can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629